REMARKS

A. Request for Reconsideration

Applicant has carefully considered the matters raised by the Examiner in the outstanding Office Action but remains of the position that patentable subject matter is present. Applicant respectfully requests reconsideration of the Examiner's position based on the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to a process for the separation, identification and quantification of individual microbes in a mixture of microbes using electrokinetic separation systems.

In one of the novel aspects of the invention, similar types of microbes are isoelectrically focused in a moving fluid. The focusing aspect of the present invention is crucial, since focusing the microbes produces sharp peaks in an electropherogram which results in accurate identification of the microbes.

C. Claim Status and Amendments

Claims 1, 3-6, 8-13, 15, 17 and 22-30 are presented for further prosecution. Claim 30 has been added by this amendment. Claims 18-21 have been withdrawn from consideration.

Claims 1, 6, 10, 15 and 26 have been amended to recite that the microbes/cells are isoelectrically focused by means of an electric field. Support for this amendment can be found in the final 3 lines on page 3 of the application where the separation is performed by means of an electric field, and in the third paragraph on page 5 of the application where the separation is done by isoelectric focusing.

Claims 1, 6, 10, 15 and 26 have also been amended to clarify that the fluid is a moving fluid. The fact that the fluid is moving is deemed to be inherent in the process and understood to those in the art.

Claims 1, 6, 10 and 15 have been amended to recite that the fluid is composed of a water-based solution. Support for this amendment can be found in par. 1 on page 14.

New Claim 30 substantially mirrors claim 1, except that claim 30 does not recite the analyzing step or the composition of the moving fluid.

D. The Office Action

Claims 27-29 had been allowed.

Claims 1, 3, 4 and 22 had been rejected as being unpatentable over Ebersole (US 5,578,460) in view of Johnson (EP 077325), Barkas, Silman (US 4,526,865) and Catsimpoolas (US 4,375,401). Claim 5 had been rejected as being unpatentable over Ebersole in view of Johnson, Barkas, Silman, Catsimpoolas and Streptococcus pyrogenes. Claims 1, 3-6, 8-13 and 22-24 had been rejected as being anticipated Durr (US 5,723,031) in view of Johnson, Barkas, Silman and Catsimpoolas. Claims 1, 3-5 and 22 had been rejected as being unpatentable over Yeung (US 5,006,210) in view of Johnson, Barkas, Silman and Catsimpoolas. Claims 15-17 and 25 had been rejected as being unpatentable over McCormick (US 6,613,211) in view of Johnson and Grant (GB 2348504). Claim 26 had been rejected as being anticipated by Fuhr (US 6,833,061)

Fuhr is the only reference that had been cited against the claims that recite the isoelectric focusing method of the invention, claims 26-29. As discussed above, claim 26 has been cancelled and independent claims 1, 6, 10, 15 and 30 recite the isoelectric focusing method of the invention. Thus, all of the claims in the application recite the isoelectric focusing method of the invention. It is therefore believed that Fuhr is the main reference applicable to the pending claims in the

application, while the rejections based on Ebersole, Durr, McCormick and Yueng are moot.

1. Fuhr does not focus microbes by means of an electric field

The isoelectric focusing process of the present invention focuses microbes or other particles by means of an electric field. The term "focusing" is understood to mean that similar types of microbes converge at a common point. The "focusing" is achieved by employing an optimum voltage in the electric field which promotes electrophoretic mobility (page 16, par. 2). An example of a voltage that produces electrophoretic mobility for certain microbes is a relatively high voltage of about 20 KV (page 28, line 22).

The relatively high voltage of the present invention gives the fluid inside the capillary a flat flow velocity profile. As a result, microbes are focused along the length of the capillary. Different types of microbes can therefore be accurately identified since sharp peaks are produced in the electropherogram.

In contrast to the invention, Fuhr does not focus microbes using an electric field. Instead, Fuhr collects microbes along the capillary wall using electrodes 12a and 12b (Figure 1). The microbes are not focused in Fuhr, rather, the microbes are attracted and collected on a portion of the wall as they flow

along the length of the capillary. The portion of the wall that collects the microbes is somewhat random, and similar microbes can be collected at different portions along the wall.

Although Fuhr does employ a voltage, the voltage is between 1-10 V (col. 9, lines 20-21). The 1-10 V of Fuhr is not strong enough to focus the microbes in the fluid as claimed in the present invention. In the present invention, the microbes are focused in the electric field since the electric field is 1000 times stronger than the field of Fuhr (for example, 20kv employed in Example 7 on page 28). Applicants respectfully submit that Fuhr is not capable of focusing the microbes in the fluid by means of an electric field as recited in claims 1, 6, 10, 15 and 30.

The focusing aspect of the present invention is crucial. As shown in Figure 9 of the application corresponding to Example 7, three different microbes are identified by very sharp peaks, each peak falling within about a 3 minute window. In contrast, Fuhr produces an electropherogram having broad peaks falling within about a 10-15 minute window (see Figures 2, 3 and 5). Most importantly, the broad peaks of Fuhr could include different types of microbes.

Applicants respectfully submit that Fuhr does not teach or suggest focusing the microbes by means of an electric field as

claimed in the present invention. It is therefore believed that the present invention is patentable over Fuhr.

E. The remaining references

The remaining references do not teach or suggest isoelectrically focusing microbes by means of an electric field. It is therefore submitted that the present invention is patentable over all the cited references taken alone or in combination.

F. Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

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